

Quality and Safety Group, 31 October 2017

Ethambutol Toxicity

Ethambutol is an effective antibiotic used to treat tuberculosis but optic neuropathy is a potentially serious side effect of the drug.

Thought to be due to zinc chelation causing mitochondrial dysfunction, ethambutol toxicity in adults is rare, occurring in less than 2% of patients on the standard dosage of 15mg/kg/day, but impaired renal function and smoking may increase the risk.

Onset of optic neuropathy is typically 2-5 months after starting therapy, but may occur within days. Symptoms can be highly variable and may initially be unilateral. Loss of visual acuity, colour vision impairment and central/paracentral scotomata may occur; bitemporal field defects have also been reported due to an affinity of ethambutol for the chiasm.

Although optic atrophy will subsequently develop, signs may be absent in early stages of toxicity, but visual evoked potentials and optical coherence tomography show promise in detecting subclinical optic neuropathy.

If ethambutol neuro-toxicity is suspected, the drug should be immediately discontinued, but withdrawal of the drug is not always effective in reversing optic neuropathy.

Whilst regular screening of adults or children taking ethambutol is not considered necessary, it is important to establish if there is any history of eye disease and a baseline visual assessment should be arranged by the prescriber before taking the drug. The responsible practitioner should advise the patient/carer to discontinue the drug if fresh visual symptoms are experienced and to seek prompt medical review.